REMARKS

Claims 32, 41, 42, and 44-48 were pending in the application, with claim 32 being withdrawn from consideration. Claims 41, 42, and 45-48 are rejected under 35 USC 103(a) as being unpatentable over Popp (US Pat. 7,130,709), in view of Simonetti (US PG Pub. 2002/0176617) and Card (US Pat. 6,970,857). Claim 44 is rejected under 35 USC 103(a) as being unpatentable over Popp in view of Simonetti, in view of Card, and in view of Buda (US Pat. 6,611,724).

Claim 32 is cancelled herein. Claim 41 is amended. Claim 49 is new. Claim 41 is independent. No new matter is added, and the subject matter of the claims is not changed by these amendments.

Description of claim amendments

Claim 41 is clarified in that the measured process variables being correlated are different process variables -- not multiple measurements of the same process variable for statistical averaging as in Popp. This clarification is supported in Applicants' par. 11, quoted later below.

> MPEP 2106 (C): *"An applicant can always amend a claim during prosecution to better reflect the intended scope of the claim."*

Claim 49 is new. Claim 49 also requires all the limitations of claim 41, and is thus readable on the elected invention of Group II.

Response to rejections under 35 USC 102(e)

Popp accumulates multiple occurrences of a given inspection parameter, performs statistical analyses, such as average and standard deviation, then compares the result with acceptable ranges (col. 20, lines 45-47, col. 22, lines 28-67). Popp further tries to locate the source of failure by the first failure point (col. 50, lines 8-14). However, this is too late -- the

failure has already occurred by then, and the source of the failure may be upstream of the identified first failure point.

Applicants' system provides correlations among different process variables, and projects backward to the source of an error based on time correlations (claim 41) and line speed (claims 42, 49). This is not the same as averaging the same inspection measurement over a plurality of product units. Whereas Popp finds the first position of a failure, Applicants can find an upstream location on a production line that is a source of a later deviation by correlating multiple process variables and projecting backwards to a convergence of these variables. Thus, Applicants take into account the complexities of cause and effect based on correlating process measurement signals from different sources.

Applicants' process variables are defined in paragraph 11 (below with amendment of 11-29-2007). Note that the listed PCT and DE applications are of the present assignee, and are not prior art, per 35 USC 103(c)(1):

> [0011] The process variables can be represented by measuring signals, which are understood in the sense of the patent applications DE 10202092.2 and PCT/DE/03/00093 mentioned above ~~and as yet unpublished~~ as signals which originate from different sources in the process and can be present in any, even different, forms e.g. analog, binary, numeric and/or as a variable physical quantity. These signals can be detected with the aid of signal sources that are already present in the process or are to be provided additionally.

The object of the present invention is to overcome the limitations of conventional approaches like that of Popp. Applicants' par. 6 describes a limitation of an approach like that of Popp. Par. 8 states that the object of the invention is to overcome such limitation.

In particular, Popp lacks the following elements of claim 41:
- determining time correlations between the failure indication and any deviations in the other measured variables; (Popp determines statistics of multiple measurements of the same measured variable)

- excluding correlations that indicate a consequential effect, and not a cause of the failure indication, and determining the cause of the failure indication without a need for detecting a second failure: (Popp measures multiple failures of the same variable. He prioritizes the failures, but they are all effects, not causes.)

Claims 46-47: Popp does not mention "sub-process" anywhere in the application.

Simonetti predicts a current or later position of an earlier-detected defect in a continuous moving web. In contrast, Popp and Applicants attempt to locate a source of a failure on a production line. These are two different goals and results. Combining Simonetti with Popp would not produce the invention as claimed.

Simonetti only applies to a continuous web. Popp distinguishes his invention in col. 22, lines 24-26: *"This is unlike prior art inspection systems that attempt to capture quality data in real time in connection with continuous webs of materials."*

Adding the time correlation feature of Simonetti to Popp would not improve Popp's approach to locating a failure source on a production line, because Simonetti predicts a later position of a defect, not an earlier cause of a defect. Simonetti would have to be applied to Popp in reverse, guided by the present invention.

Applicants' detection system as claimed is fully or partially independent of the automation process control system. On Applicants' page 2. lines 21-22: "the measuring bus system being such that it is not identical to existing bus systems used for automation". On page 17, lines 22-26: "The decoupling of the measuring and analysis devices from existing automation devices of the industrial process also allows not only a high level of freedom from retroaction when detecting measuring data but also uniform measuring data detection and analysis in the event of modifications within the industrial process." In contrast, the detection system of Popp is connected to his information exchange 1110, which controls the drive system 1408, all of which use the same communication system 1124 (FIG 9). This allows feedback to occur between detection, analysis. and operation. Applicants' independent measuring system

offers substantial advantages in avoiding feedback (termed "retroaction" in the specification), and in accuracy and timeliness, by bypassing automation control bus failures, delays, and reconfigurations. It also allows a direct comparison and analysis of process variables before and after a control bus modification. This feature is recited in the last element of independent claim 41.
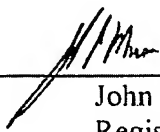
Conclusion

M.P.E.P. 2143.03 provides that to establish prima facie obviousness of a claimed invention, all words in a claim must be considered in judging the patentability of that claim against the prior art. If an independent claim is nonobvious under 35 U.S.C. 103, then any claim depending therefrom is nonobvious.

As argued above, the proposed combination of Popp and Simonetti lacks features recited in the independent claim 41 and others herein, is unmotivated, and must be modified guided by the present invention. Card and Buda do not address the features argued above. Thus the proposed combination does not support the obviousness rejections of the claimed invention. Applicants feel this application is in condition for allowance, which is respectfully requested.

The commissioner is hereby authorized to charge any appropriate fees due in connection with this paper, including fees for additional claims and terminal disclaimer fee, or credit any overpayments to Deposit Account No. 19-2179.

Respectfully submitted,

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